

GANPAT UNIVERSITY
B. TECH SEM - III INFORMATION TECHNOLOGY
REGULAR EXAMINATION NOV – DEC 2016
2IT302: Computer System Organization

Time: 3 Hours

Total Marks: 60

Instruction:

1. Attempt all questions.
2. Figures to the right indicate full marks
3. Each section should be written in a separate answer book

SECTION – I

- Que. – 1 (A)** Answer the following. [4]
1. Which function carried out by Address bus?
 2. Define: Mnemonics
 3. In D flip-flop the previous input $D=1$ then output $Q(t) = 1$, so what is the output in next state if $D=0$?
 4. What is the difference between register and latch?
- (B)** Explain Clocked RS Flip-Flop in short. [2]
- (C)** Implement 4 bit binary parallel adder with look ahead carry generator [4]

OR

- Que. – 1 (A)** Answer the following. [4]
1. What is the difference between RAM and ROM?
 2. Construct full subtractor using 3 X 8 decoder.
- (B)** Explain 4-bit serial transfer with suitable example. [3]
- (C)** Discuss JK flip-flop in brief. [3]
- Que. – 2 (A)** Define term: Microprocessor and also discuss the organization of microprocessor based system. [4]
- (B)** Write an ALP to load A1H in register D and C1H in register L. performs subtraction on content of register D and L. store result at memory location C100H (without using STA Instruction). [4]
- (C)** Explain Following instruction (i) LXI (ii) CMA [2]

OR

- Que. – 2 (A)** Explain internal data operations of 8085 microprocessor. [4]
- (B)** Write an ALP to performs Exclusive-NOR operation on content of register A and B. store result at memory location B100H [4]
- (C)** Identify addressing mode of Instruction (i) MOV A, B (ii) LDAX B [2]
- Que. – 3 (A)** Explain bidirectional shift register with parallel load in detail. [4]
- (B)** Discuss 8085 flag register in brief. [3]
- (C)** Explain 1 X 8 De-Multiplexer with suitable diagram. [3]

[P. T.O]

SECTION - II

- Que. - 4 (A) Answer the following. [5]
1. Find 10's complement of $(542.14)_{10}$
 2. Convert $(101100.1001)_2$ to decimal.
 3. Perform 101101×101 in binary.
 4. Convert binary number 111011 to gray code.
 5. $(1025.75)_8 = (\text{_____})_{16}$
- (B) Prove De' Morgan Low: $(A+B) = A'.B'$ and $(A.B)' = A' + B'$ [2]
- (C) Express the Boolean function $F = PQ + P'S$ in form of POS. [3]

OR

- Que. - 4 (A) Answer the following. [5]
1. Define term: Minterm.
 2. $(F1D.2B)_{16} = (\text{_____})_8$
 3. $(11110100.11)_2 = (\text{_____})_{10}$
 4. Find $(r-1)$'s complement of $(1055)_{10}$
 5. Convert $(7882.25)_{10}$ to binary.
- (B) Construct Exclusive-OR using NOR gate. [2]
- (C) Express the Boolean function $F = A + B'C$ in form of SOP. [3]

- Que. - 5 (A) Simplify Boolean function $F(A, B, C, D) = \sum (0, 1, 2, 3, 7, 8, 10, 11, 15)$ using Tabulation Method. [4]
- (B) Explain Half adder in short. [2]
- (C) Differentiate combinational and sequential circuit. [4]

OR

- Que. - 5 (A) $F(A, B, C, D, E) = \sum (0, 2, 4, 6, 9, 11, 13, 15, 17, 21, 25, 27, 29, 31)$ simply Boolean function F using karnaugh map method. [4]
- (B) Design logic diagram which find 2's complement of given 3-bit binary number. [2]
- (C) Explain Universal gate and implement basic logic gates using universal gate in detail. [4]
- Que. - 6 (A) Design and discuss combinational circuit that convert BCD number to equivalent excess-3 code. [4]
- (B) Discuss Full adder with help of Half adder in brief. [3]
- (C) What is the importance of don't care condition in K-Map discuss with suitable example. [3]

END OF PAPER